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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/574,462

03/31/2006

Ernest Grimberg

31363

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67801

7590

07/09/2010

MARTIN D. MOYNIHAN d/b/a PRTSI, INC.

P.O. BOX 16446

ARLINGTON, VA 22215

EXAMINER

MALEVIC, DJURA

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/574,462	Applicant(s) GRIMBERG, ERNEST	
	Examiner DJURA MALEVIC	Art Unit 2884	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 May 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 63-69,71-80,82-90 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 63-69,71-80,82-90 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 January 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>05/02/10</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04/22/2010 has been entered.

Response to Arguments

Applicant's arguments with respect to claim 63 and 77 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 63-64, 66-69, 71, 73- 80, and 82– 89 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang et al (WO 01/388825A1) in view of Uchiyama et al. (JP 7-244145).

Regarding claim 63, Yang discloses an infrared sensor (Figure 1) comprising:
a sensor array (see figure 1, element 100) comprising multiple IR sensors
(element 100 is made of pixel elements), for collecting IR energy from an external

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scene; and a sensitivity adjuster (Figure 2, element 214) associated with said sensor array, for adjusting between a field of view, and a grouping of sensing pixels to derive a required image sensitivity (element 214 selects the window or grouping of sensor elements, see figure 1, elements 102, 104 and 106). Yang further discloses an image processor (i.e., window processing circuit), for processing a sensor array output signal so as to form a signal for controlling said adjusting (page 10, lines 23-page 11, line 21, IR sensor is re-configurable and is adjusted in real time).

Yang fails to expressly disclose said adjusting sensitivity is derived from the image via feedback. Notice, “feedback loops” are well known and typical in the art. For example, Uchiyama et al. shows real-time “feedback” control (See Drawings 4 and 5) for optimizing device sensitivity is known, (i.e., SNR) [0027 – 0029] . In view of the utility, adjusting the sensitivity whether a target candidate exist or not, it would have been obvious to person of ordinary skill in the art at the time the invention was made to modify Yang to include the teachings feedback such as that taught by Uchiyama.

Regarding claim 64, Yang discloses that the sensor array comprises an array of photon detectors (see figure 2, element 202 = pixel array of sensing elements which are photogates = photodetectors).

Regarding claim 66, Yang discloses an IR sensor wherein said sensitivity adjuster comprises a window selector for selecting a readout window within said array (see figure 1, window 1, window 2, window 3, each window can be selected to be read out).

Regarding claim 67, Yang discloses that the sensitivity adjuster comprises a grouping factor selector for selecting a pixel grouping factor during IR energy collection (see figure 1, element 104, and element 106 and element 102 are group different pixel groups together).

Regarding claim 68, Yang discloses an IR sensor in accordance, further comprising a readout element (elements 204) for performing periodic sensor array readout with a readout time variable with a size of a selected readout window (see page 16, lines 10-23, readout is done by different clock cycles).

Regarding claim 69, Yang discloses an IR sensor wherein said adjusting is in accordance with externally provided control information (page 10, lines 23-page 11, line 21, IR sensor is re-configurable and is adjusted in real time).

Regarding claims 71, 86 and 88, Yang discloses that the image processor further comprises an SNR detector for detecting an SNR of said image signal (page 41, lines 6-14). Notice that Uchiyama adjust for SNR.

Regarding claim 73, Yang disclose an IR sensor, further comprising a mode selector for switching between a high-sensitivity operating mode and a low-sensitivity operating mode in accordance with said feedback signal (See page 11, lines 18-21, high and low resolution modes).

Regarding claims 74-75, Yang discloses an IR sensor, further comprising a mode selector for switching between a small readout region and a large readout region, respectively to provide high-sensitivity and low-sensitivity imaging (page 41, lines 6-14).

Regarding claim 76, Yang discloses an IR sensor further comprising a video processor, for processing a sensor array output to form a video image (see page 45, lines 9-23, discloses a video camera).

Regarding claim 77, Yang discloses a method for IR sensing, comprising:
adjusting a pixel grouping of a sensor array to provide a required image sensitivity (see figure 1, various windows or pixel groupings are provided to adjust the sensitivity of the sensor array, see also page 11, lines 18-21, Yang discloses different pixel groupings to created different image resolutions/sensitivities) collecting IR energy over a variable window from an external scene with said sensor array, in accordance with said pixel grouping (see figure 1, IR image using various pixel groupings, 102, 104 and 106 are detected).

Yang fails to expressly disclose said adjusting sensitivity is derived from the image via feedback. Notice, “feedback loops” are well known and typical in the art. For example, Uchiyama et al. shows real-time “feedback” control (See Drawings 4 and 5) for optimizing device sensitivity is known, (i.e., SNR) [0027 – 0029] . In view of the utility, adjusting the sensitivity whether a target candidate exist or not, it would have been obvious to person of ordinary skill in the art at the time the invention was made to modify Yang to include the teachings feedback such as that taught by Uchiyama.

Regarding claim 78, Yang discloses selecting a sensor exposure time (page 13, lines 18-19, discloses a frame time or exposure time dependent upon the resolution desired).

Regarding claim 79, Yang discloses that said selecting is to maintain an average collected charge of said sensor at a specified level (see claim 1, lines 12-14).

Regarding claim 80, Yang discloses that said method is performed repetitively at a maximum rate permitted by said pixel grouping and said selected exposure time (see claim 17).

Regarding claims 82 and 88, Yang discloses that said feedback signal comprises at least one of: average image SNR (See page 41, lines 23-24).

Regarding claim 83, Yang discloses averaging respective sensor levels over multiple sensor array readout cycles (see claim 15).

Regarding claim 84, Yang discloses switching between a high-sensitivity operating mode and a low-sensitivity operating mode (See page 11, lines 18-21, high and low resolution modes).

Regarding claim 85, Yang discloses analyzing a video IR image to identify specified properties of interest (see page 45, lines 9-23, discloses a video camera).

Claim 65 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yang and Uchiyama in view of Hsieh (NPL-“A New CMOS Circuit Design for the IR FPA...”).

Regarding claim 65, Yang discloses a sensor array comprising a CMOS detector (Page 10, lines 12-14) and does not explicitly state an IR FPA. However, CMOS based IR FPAs are well known in the art, as disclosed by Hsieh (See abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have adapted the CMOS detector as an IR FPA in order to increase sensitivity and immunity from and decrease noise.

Claims 72, 87 and 89 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang and Uchiyama in view of Park (US 4,782,396).

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Regarding claims 72, 87 and 89, Yang discloses the limitation set forth claim 70 and does not specify a contrast detector in the image processor for detecting a contrast level of the image signal. However, Park discloses a sensor, wherein said image processor further comprises a contrast detector, for detecting a contrast level of said image signal (column 2, lines 45-51). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have included the contrast detector disclosed by Park with the invention disclosed by Yang in order to accurately focus the detector to the object at hand.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DJURA MALEVIC whose telephone number is 571.272.5975. The examiner can normally be reached on Monday - Friday between 8:30am and 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on 571.272.2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David P. Porta/
Supervisory Patent Examiner, Art
Unit 2884

***/Djura Malevic/
Examiner, Art Unit 2884
571.272.5975.***